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ABSTRACT

A study was conducted at Florissant Valley Community College (FVCC) to compare three standardized tests--the Iowa Silent Reading Test (ISRT), the Nelson-Denny Reading Test (NDRT), and the Stanford Diagnostic Reading Test (SDRT)--for use in assessing student reading skills. The study population of 402 students included 216 students who agreed to participate and 186 students enrolled in freshman English classes selected for testing. Of this group, 102 students completed the NDRT, Form E and the SDRT, Blue Level Form A; 184 completed the NDRT and the ISRT, Level 3 Form E; and 116 completed the NDRT only. At the end of the fall 1982 semester, course grades were obtained for the tested students. Predictive validity of the three tests was determined by computing Pearson product-moment correlation coefficients, and a stepwise regression analysis was completed to determine the most effective combination of variables for predicting academic performance. Study findings revealed that all three tests had adequate predictive validity, but that the ISRT's predictive validity was substantially greater than that of the SDRT or NDRT. The combination of the ISRT scores plus high school rank accounted for about 70% of the variance in semester grade point average and about 68% of the variance in reading-related course grades. (HB)

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A COMPARISON OF THE ISRT, NDRT, AND SDRT FOR USE IN ASSESSING FVCC STUDENT READING SKILLS

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ABSTRACT

Assessment of college students' basic skills is an issue of growing concern for educators, yet many institutions continue to rely on standardized tests for basic skills assessment which have not been properly evaluated. The present research utilizes stepwise regression analysis to determine the effectiveness of three standardized reading tests for use with community college students in an effort to evaluate a rating scale for standardized achievement tests developed by Webb (1983). The results of the regression analysis, which indicate that the Iowa Silent Reading Test is a more effective instrument than either the Stanford Diagnostic Reading Test or the Nelson-Denny Reading Test, are consistent with the rating scale results for these three tests. The rating scale appears to be a valuable tool for use in choosing standaridzed tests for a college assessment program.

INTRODUCTION

Finding a suitable instrument for assessing community college students' basic skills in reading has presented a set of problems to educators over the years, including:

a. most reading tests are normed on a four-year college population, the characteristics of which are different from a two-year college population , thereby making valid conclusions difficult;

b. most reading tests are intended to measure a relatively narrow range of abilities accurately (i.e. - 9th grade through 12th grade), and lack reliability and validity outside that range, thereby limiting their utility for the typically diverse community college student body;

c. most reading tests currently on the market are not of sufficient technical quality to be appropriate for use in making sound educational decisions (Webb, 1983);

d. most reading tests furnish little more than a score, or set of scores, presented in percentiles or grade equivalents, which do not provide diagnostic information.

As a result of these deficiencies, community college assessment and testing programs have had to rely on instruments that might not have been reliable, might not have furnished accurate data, or might not have furnished a complete picture of students' abilities. Webb, in addressing these problems, developed a rating scale for standardized achievement tests (1983) to assist educators in evaluating different tests for use in their institutions. The present research was undertaken to determine the effectiveness of Webb's rating scale in an actual community college testing program for:

1. prediction of student performance in courses with a heavy emphasis on reading (history, psychology, political science, sociology, business administration, economics, and literature);

2. prediction of overall student academic performance, as measured by semester grade point average; and

3. determination of a regression equation for prediction purposes.

METHODOLOGY AND DATA COLLECTION

The Population - The population for the research included all students at Florissant Valley Community College who were enrolled in nine or more credit hours during the Fall, 1982 semester, who were not enrolled in a developmental or remedial reading course, and who had attempted less than 15 hours of college coursework prior to the Fall, 1982 semester, either at Florissant Valley or elesewhere. A sample for the research was obtained from this

population by (a) randomly selecting 600 students by computer, of which 216 (36%) agreed to participate, and (b) selecting freshmen English classes (remedial, developmental, and college level) for group testing, which added 186 subjects to the sample, for a total pool of 402 students.

Data Collection. 102 of the subjects completed both the Nelson-Denny Reading Test, Form E (NDRT) and the Stanford Diagnostic Reading Test, Blue Level Form A (SDRT), 184 subjects completed both the NDRT and the Iowa Silent Reading Test, Level 3 Form E (ISRT), while 116 completed the NDRT only. All tests were administered during September and October, 1982, at which time data were also obtained on subject sex, race, age, and high school rank. The sample was reduced to 364 subjects following data collection due to incomplete data being obtained for 38 subjects.

Following the end of the Fall, 1982 semester, academic performance data in the form of course grades were obtained. An additional 34 subjects were eliminated from the sample at this point due to their withdrawing from 50% or more of their scheduled coursework, or receiving a grade of "Incomplete" in one or more courses. The following values were assigned to grades so that statistics could be computed: A = 4; B = 3; C = 2; D = 1; F, W, PR = 0.

Data Treatment. Predictive validity of the three tests was determined by computing Pearson product-moment correlation coefficients for test scores with academic performance data. A stepwise regression analysis was then completed to determine the most effective combination of independent variables for predicting academic performance.

RESULTS

Table 1 presents the results of the correlation analysis, while results of the stepwise regression procedure are presented as Table 2. These data from Table 1 indicate that all three standardized tests have adequate predictive validity, but that the ISRT's predictive validity is substantially greater (both total score and subtest scores) than that of the SDRT or NDRT. Table 3 below presents the validity coefficient range, and median value, for all three tests.

Table 3 - Predictive Validity of ISRT, NDRT & SDRT

	ISRT	NDRT	SDRT
Range	.681 - .807	.177 - .577	.469 - .773
Median	.757	.401	.540

In addition, the ISRT appears to be the most effective of the three tests for use in a prediction equation, as data from Table 2 indicate. The combination of ISRT scores plus high school rank (HSR) accounted for about 70% of the

variance in semester grade point average (SEMGPA) and about 68% of the variance in reading related course grades (READRELGPA), as compared to 50% (SEMGPA) and 68% (READRELGPA) for the SDRT and 25% (SEMGPA) and 33% (READRELGPA) for the NDRT.

DISCUSSION

Webb's rating scale for evaluating standardized tests (1983) indicated that the ISRT was the best choice among the three tests under consideration for use in an assessment program, achieving an overall rating of 76 points (out of 100 possible) as compared to an overall rating of 65 for the SDRT and 59 for the NDRT (see Tables 4 and 5 for these results and the rating criteria). The results of the present research indicate that the ISRT is the most effective of these three tests for predicting academic performance, with the SDRT somewhat effective, and the NDRT least effective. These findings appear to support the use of this rating scale for evaluating standardized achievement tests, although more extensive research utilizing other tests and other populations is needed.

TABLE 1 - RESULTS OF CORRELATIONAL ANALYSIS[1]

Variables: X with Y	NDRT & SDRT: NDRT Results N = 80	NDRT & ISRT: NDRT Results N = 154	NDRT ONLY NDRT Results N = 96	NDRT & SDRT: SDRT Results N = 80	NDRT & ISRT: ISRT Results N = 154
	Subject Group				
	r value/strength	r value/strength	r value/strength	r value/strength	r value/strength
semgpa * total score	.427/average	.317/below average	.428/average	.494/average	.767/above average
rdrlgr * total score	.577/above average	.421/average	.496/average	.652/above average	.807/exceptional
semgpa * vocabulary score	.309/below average	.343/below average	.327/below average	.469/average	.755/above average
rdrlgr * vocabulary score	.576/above average	.442/average	.524/average	.773/above average	.787/above average
semgpa * comprehension score	.177/below average	.310/below average	.322/below average	.482/average	.700/above average
rdrlgr * comprehension score	.429/average	.371/below average	.380/below average	.672/above average	.759/above average
semgpa * efficiency score[2]					.681/above average
rdrlgr * efficiency score					.692/above average
semgpa * decoding score[3]				.541/average	
rdrlgr * decoding score				.538/average	
semgpa * high school quartile	.392/below average	.423/average	.484/average	.423/average	.484/average

KEY

A CORRELATION OF: .00 - .20 = little/no validity
.21 - .40 = below average validity
.41 - .55 = average validity
.56 - .80 = above average validity
.81 - .99 = exceptional validity; For an Achievement Test

1 All correlations were statistically significant at the .05 level.
2 an ISRT subtest only (efficiency)
3 an SDRT subtest only (decoding)

TABLE 2 - Stepwise Regression Results By Subject Group

Group and Dependent Variable	Regression Model	R-Square	F	Prob F
NDRT Only and SEM GPA	SEMGGPA=NDRT Total + HSR + Age (no other variables were significant)	.252	10.34	.0001
NDRT/SDRT and SEM GPA	SEMGPA=SDRT DEC + SDRT COMP + RACE +SDRT VOC (no other variables were significant)	.496	18.46	.0001
NDRT/ISRT and SEM GPA	SEMGPA = ISRT TOTAL + ISRT VOC + ISRT COMP + ISRT EFF + HSR (no other variables were significant)	.701	57.41	.0001
NDRT Only and READ REL GPA	READ REL GPA = HSR + NDRT Total (no other variables were significant)	.333	31.31	.0001
NDRT/SDRT and READ REL GPA	READ REL GPA = SDRT VOC + SDRT COMP + SDRT DEC (no other variables were significant)	.683	54.54	.0001
NDRT/ISRT and READ REL GPA	READ REL GPA = ISRT Total + ISRT VOC + Sex (no other variables were significant)	.677	104.86	.0001

TABLE 4 - EVALUATION OF THREE STANDARDIZED READING TESTS

Test	Validity: a) Predictive b) Criterion	Reliability: a) Internal b) Alternate Form	SE_m	Purpose & Subtests	Normative Data	Item Analysis Data	Theory	Forms	Manual	Time & Cost	Overall Rating
SDRT	a) .46 with college GPA b) .71 with Reading tests (3)*.3=9	a) .91 (4) b) .80 (1) (2).3=6	Score range of about 15% for mean (3).3=9	Achievement in Comprehension, Decoding, Vocabulary, Reading Rate (4) .2=8	Junior College population not true national norms (4).2=8	Item diff. index good (68%); discriminates well; (3).2=8	Sound for test & sub-tests (3).2=6	Two forms (3).1=3	One of the best available (5).1=5	2 Hrs.; 35¢ per student (3).1=3	65 total score out of 100 possible points; weak in reliability; strong points are manual & normative data; appears to be an adequate test
NDRT	a) .31 with college GPA b) .45 with Reading tests (2).3=6	a) .88 (3) b) .82 (2) (2).3=6	Score range of about 13-15% for mean score (3).3=9	Achievement in Comprehension, Vocabulary, Reading Rate (4).2=8	Junior & 4-yr college population; not true national norms (4).2=8	Item diff. index poor (.56) discriminates poorly; (2).2=4	Sound for test & sub-tests (3).2=6	Four forms (4).1=4	Average (3).1=3	45 min. 15¢ per student (5).5=5	59 total score out of 100 possible points; weak in reliability, and item analysis data; strong points are time and cost factors
ISRT	a) .58 with college GPA b) .77 with Reading tests (4).3=12	a) .90 (3) b) .86 (3) (3).3=9	Score range of about 10-12% for mean score (4).3=12	Achievement in Comprehension, Vocabulary, Reading Efficiency (4).2=8	Junior College population; true national norms (5).2=10	Item diff. index good (.70); discriminates well; (4).2=8	Sound for test & sub-tests (3).2=6	Two forms (3).1=3	Good to above average (4).1=4	1 hour; 16¢ per student (4).1=4	76 total score out of 100 possible points; no real weaknesses; norms strongest point; appears to be the superior test

* The number in parentheses is the rating given for that criterion, the multiplier is the weighting given that variable, and the product is the total score for that variable.

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